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ABSTRACT

This study examined the relationship between various levels of teacher restriction or accommodation of student behaviors and the levels of interest shown by pupils in certain types of classroom activities. A total of six first grade teachers in two schools were given the Open Program Structure Index (OPSI) and, based on their scores, were rated along a continuum from restrictive to accommodating. Ten students, randomly selected from each teacher's class, were observed while they engaged in each of three types of tasks: (1) closed (workcards), (2) relatively closed (books and table games), and (3) open (creative activity). Their interest in each of these tasks was rated as high, medium, or low, based on the Interest Rating Scale which measures persistence in activity, ease of distractibility, and whether contact with others is work related. The findings revealed a significant negative correlation between the teacher's OPSI scores and the students' interest ratings across all four tasks. This correlation suggests that students of restrictive teachers display higher levels of interest in common classroom activities than students of accommodating teachers. The appendix contains the Open Program Structure Index and the Interest Rating Scales. (JMB)

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THE RELATIONSHIP BETWEEN CHILDREN'S LEVELS OF INTEREST AND FREEDOM OF CHOICE IN FIRST-GRADE CLASSROOMS

BY

ROMA KRYSTYNA SZCZESNOWICZ

B.S., University of Bristol, 1972

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CHAPTER I

INTRODUCTION

Statement of the Problem

In some classes children will barely glance up from their activities when visitors enter. In others, an aspiring unobtrusive observer is immediately surrounded by half a dozen curious faces the moment he walks through the door. Students in some classes seem to concentrate more on their work, to persist longer in the face of difficulty and to be less easily distracted from their occupation, while in other classrooms pupils seem to maintain a constant stream of social visiting often to the detriment of actually completing any task. A casual observer in these two classrooms might be led to comment that students in the former room seem to be more interested in their work than those in the latter class.

Getzels distinguished interest from drives, needs and attitudes. He suggested its source was in experience and that interest challenged the individual to exert himself without any biological necessity (Getzels, 1969).

It is undeniable that interest is a powerful stimulant. Interest arouses positive motivational forces such as curiosity, inquisitiveness, and a desire to pursue a subject. It produces desirable qualities such as perserverance, effort and involvement. Finally, by making a task meaningful, that is, interesting to a child, it facilitates discovery and learning (Dewey, 1913, pp. 43-81).

The importance assigned to the construct of "Interest" has tended to wax and wane according to whether the predominating educational ideology has been conservative or progressive. In the schools of the 19th century the

issue of children's interest was totally dismissed (Braxton Craven, 1849; Good, 1962, pp. 31-86; Parker & Temple, 1925, pp. 5-6). With the turn of the century, Dewey's new philosophy stressed the vital role that children's interests played in furthering their "natural powers" (Dewey, 1916, p. 153). Today there is a split between educational theories, some of which favor a drill-oriented regime regardless of pupils' interests, such as the Becker-Engelmann Distar program (Bereiter & Engelmann, 1966; Evans, 1971, pp. 113-16). Others, notably the Open Education movement, place heavy stress on the importance of freeing the child to follow his own interests (Spodek, 1973, p. 72).

One of the main assumptions of the Open Education movement is that a child will be more likely to become involved and persist in any given activity if he himself has chosen this activity, on the basis of his own interests, from among a number of alternatives (Barth, 1971, p. 123). That is, if a child is allowed a choice between alternative tasks, he will pick the one most interesting for him, and he will concentrate and persist in this activity more readily than if it had been assigned to him by the teacher.

However, in actual practice this may not always be the case. The complaint has generally been heard from teachers who have tried unsuccessfully to implement an open classroom that giving the students freedom to choose an activity often led to chaos, and that they frequently just "ran wild" and rarely got down to any "solid work." Packard (1973) suggested that perhaps we have gone too far in allowing freedom in the classroom, overlooking the need for a planned sequence of instruction, monitoring and feedback procedures. Most pre-schoolers, Packard stated, would rather "goof around with someone or something else than work with sounds and words" (1973, p. 555). He said that

we should realize the aimlessness and inefficiency of putting the student in the situation of "having to do what I want to do" (ibid., p. 556).

Occasionally the distinction is made that children from middle class homes are more able to cope with freedom in the classroom because they carry internal rules of behavior within themselves, while children from lower class homes need a structured situation with restrictions because they lack this discipline. Klaus and Gray (1968) in their report on the Early Training Project for disadvantaged children stated that lower class students come from "spatially and temporally disorganized homes" (pp. 15-16). They went on to suggest the use of concrete and structured reinforcement schedules to help raise such children's academic performance. Bruner also suggested the need for a structured environment for lower class children when he said "There seems to be a wide range of alternative ways to succeed in an intervention program, provided only they produce opportunities for mother and child to carry out activities that have some structure to them" (1972, p. 25). Furthermore, he suggested that this structure is not so necessary for middle class children who have different life goals apparent in their language forms. "...middle class children are more strongly motivated towards achievement than are lower class children" (1972, p. 13).

The crucial variable involved in all these debates is of the amount of freedom of choice to be allowed the pupil. Whether a relationship exists between the availability of choice and the pupil's ability to concentrate and persist, in short to be interested in a particular task, is the crux of the investigation.

Specific Objectives

The specific objective of this study was to test the proposition that students' levels of interest in certain tasks were related to given teacher techniques of classroom management. The rationale of this study assumed that a teacher who was classified as having a high level of accommodation to student behaviors would consider a large number of different student responses to be appropriate and acceptable classroom behaviors. Then her students would become more accustomed to having a large number of potentially new and exciting stimuli available to them. More so than students of behavior-restricting teachers who did not have such a wide variety of alternative stimuli available to them. Thus the former students would have a relatively high threshold of interest arousal, having become habituated to a higher level of stimulation, and so would find it more difficult to become interested in more mundane and sedentary matters such as reading and workcard assignments. In the case of the behavior-restricting teacher who had a more formal approach to teaching, her students would not learn to expect constant fresh stimulation and so might be more prepared as well as able to become involved in such routine class activities.

Procedures

A three-point Interest Rating Scale was developed and elaborated from distinctions originally made by Katz (1968) in her Child Behavior Survey Instrument. This instrument was used to acquire an overall interest measure for each class in each particular activity. The basic rationale for the elaboration of the Interest Scale came from Dewey's book Interest and Effort in Education, in which he said that interest arose from within the child when

he undertook a task which furthered his individual growth or extended the child's activity in a meaningful way (1913, p. 14). This view of interest is congruent with Getzels' definition of interest as "a characteristic disposition organized through experience which impels an individual to seek out particular objects, activities, skills, understandings, or goals for attention and acquisition (1969, p. 470). If this is so, then a possible measure of interest would be the child's persistence with the task, the depth of his concentration and the ease with which he was distracted from the task. Under conditions of high interest, interaction with others would be undertaken in order to seek further information to help him with his activity. This view of interest as primarily a personal interaction with an activity was used in this study as a basis for the empirical observations and measures.

Since interest is necessarily contingent on involvement with an activity (that is, one cannot be interested in "nothing") the concept of "interest" was considered to be truly manifested only when the subject was occupied with a task. For this reason, one of the main undertakings of this study was to observe levels of interest in certain activities. Four different tasks were chosen and it was assumed that these tasks varied in the amount of possible alternative behaviors they made available for the student to engage in. These tasks were intended to range along a continuum from being "Open," allowing for a wide amount of choice between alternative possible responses, to being "Closed," so that the task allowed little or no freedom to the pupil to choose from a range of alternative responses.

The varying amounts of choice between different acceptable behaviors that a teacher allowed in her class were assessed through an already existing instrument designed for this purpose, the Open Program Structure Index,

developed by Dopyera (1961). The objective was to place teachers along a "behavior-restricting" to "behavior-accommodating" dimension according to whether the teacher restricted choice among alternative behaviors for pupils in a given task-situation, or whether she was accommodating a wide variety of pupil responses in such a task-situation and considered them to be appropriate in the classroom. The apparent level of interest among the students on a certain task was related to the amount of choice the teacher allowed in her class. These speculations gave rise to the following hypotheses.

Hypotheses

1) The more the teacher restricts the availability of choice between different classroom behaviors, the more the students display a higher level of interest in general than in classes where the teacher accommodates a wide variety of classroom behaviors.

2) Students of behavior-restricting teachers show a higher level of interest in closed activities than students of behavior-accommodating teachers.

3) Students of behavior-restricting teachers show a higher level of interest in relatively closed activities than students of behavior-accommodating teachers.

4) Students of behavior-restricting teachers show a higher level of interest in Open activities than students of behavior-accommodating teachers.

Review of the Literature

The relevant literature is discussed under three headings. The first deals with the basic construct of <u>interest</u> and summarizes a number of previous

studies of interest. Attempts at measuring the variable of interest are also discussed. In the second section interest is related to the variable of choice and the effect of choice on interest and preference is discussed both theoretically and with insights derived from laboratory studies. Finally, the third section examines the relationship between the two variables, choice and interest, by reviewing school-based studies which examine the relationships between various attributes of students which may be said to arise from interest to the amount of choice allowed the students in their classrooms.

The Construct of Interest

Children's levels of interest or involvement in their work have not been widely studied. Typically the term interests has been linked with children's hobbies or adolescent vocational leanings. This gap in our knowledge of pupils' involvement or interest in their classroom activities is a serious omission in the pedagogical literature.

Studies like that of Jackson and Wolfson (undated mimeograph) have tended to look at the subject of children's interest or involvement in their work from a negative point of view by focusing on what happens to the child when he is not involved or interested in some activity (as when constraints are placed on him). They attempted to use this information to say something about the time when the child is actually occupied. This approach seems to be rather like looking at the background of a figure-ground effect instead of trying to define the object itself. In a previous study this author attempted to investigate patterns of children's interruptions from work, in the hope that this pattern of interruptions would disclose something about the pupil's ability to work independently. The study revealed the variety of different

ways in which a child could become distracted from his work and what behaviors appeared during these distractions, but the data provided no clue as to the quality or intensity of his involvement with any particular task. This discussion demonstrates the difficulties inherent in describing an elusive variable such as interest in direct terms. It is suggested that the indirect measures employed by Jackson and Wolfson and by this investigator previously give but a wavering glimpse of the topic under consideration. The objective of this study was to examine levels of interest directly and from the positive rather than from a negative, indirect angle.

Dewey (1913) gave a great deal of consideration to the role of children's interests in his previously mentioned book, Interest and Effort in Education. He criticized attempts made by many teachers to attach interest artificially to activities which are not in and of themselves interesting and meaningful to the child, saying that this "reduces method in instruction to more or less external and artificial devices for dressing up the unrelated materials so that they will get some hold upon attention" (p. 23). Interest, he proposed, came from within the child when the child attempted new activities and methods to achieve his goals or to find out what he wanted to know. A pupil's interests are concurrent with the development of his natural abilities and often demand a re-direction of the child's activity. However, all this speculation is theoretical, and even though these ideas seem to have some face validity, little empirical work was done in Dewey's time to examine whether his claims for the importance of interest for social, emotional and intellectual development of children were justified. Today the Open Education movement also asserts in theory the importance of allowing the child to be free to follow his own interests so that he may become an autonomous and responsible

individual without really examining the empirical evidence in support of such a position. Rashly and Sabers (1974) described some of the other similarities between progressive and open education and warned that certain factors which led to the demise of Progressive Education, such as its failure to adequately document its claims of a broad social and affective influence upon children, may also hamper the development of Open Education.

Some empirical work, however, has been recently reported on the topic of children's interests. Prescott et al. (1967), in a wide and encompassing study of group day-care, attempted to describe children's behavior on a five-point continuum of interest or involvement in their activities. They reported that level of interest was high when teachers behaved in certain specific ways. Involvement of children was highly related to encouragement, teacher emphasis on verbal skills and lessons in consideration and creativity. They were negatively related to restriction, guidance, and to lessons in control, restraint and rules of social living. Prather (1969) found that a pupil's activity levels and involvement in classroom activities were positively correlated with a teacher's abstract belief system and resourcefulness, and were negatively correlated with the teacher's dictatorial and punitive behavior.

The greatest problem for research on levels of interest lies in the problem of defining and measuring interest. In addressing this difficulty, Coller (1968) put forward an Intensity Involvement Scale developed by McCandless. This was a five-point scale in which the first three points were concerned with behaviors that showed evidence of indifference and only the last two points really examined the intensity of the involvement. In this way, the scale was weighted more to the negative side of interest (discussed

previously) in that it looked more at behavior evident when the child was not interested rather than at the matter of interest itself. The Russell Sage Relations Test (Lake, 1973) was a category system designed to look at interest in group activities and at eagerness and cooperation among group members to complete a group task. However, this measure was really directed at exploring the classroom process rather than looking at students' interest in their work per se. A considerably more concrete, positive and objective involvement observation schedule is in the process of being developed by Roderick (1973). The aim of Roderick's pilot study was to evolve procedures for describing, coding and rating non-verbal behavior related to involvement. The schedule was based on large numbers of observed classroom behaviors. It examined categories of motion, stance, visual and non-visual behavior and non-verbal vocalized expressions. In addition, it used modifiers such as speed, duration and frequency of action. When Roderick's work on this measure is completed it will probably permit the most direct and objective means of measuring involvement behavior that is non-verbal.

Interest as Related to Choice

Interest can also be seen as a function of choice, since it is often assumed in Open Education theory that only under the situation of maximum freedom of choice are students really able to follow their interests. Likona (1971) discussed the theoretical basis for the Open Education movement's belief in the value of children's making their own choices. He related the rationale for allowing freedom of choice to the educational objectives of Piaget and others, and to theories of intrinsic motivation and language acquisition. He suggested that when children have control over their own environment the beneficial results would include the reduction of anxiety.

It is virtually impossible to implement experimentation on different amounts of choice in the same class without totally disrupting the on-going classroom processes. In this situation laboratory experiments are useful. Costanzo, Grumet and Brehm (1974) devised a laboratory situation in which the actor could choose one toy and was allowed to play with it, and compared this to a situation where the actor chose one toy but was constrained to play with something else. Subjects rating the actor's liking for each toy tended to rate liking first according to the actor's choice of toy and second according to the actor's behavior. Hence a chosen toy was rated as more desirable than an unchosen toy but in addition a played-with toy was rated as more desirable than an unplayed-with toy. These ratings show that choice is not always the only variable that is seen as relevant to liking or being interested in an object, but that, in addition, just having experience with the object also effects liking for it. When one looks for indications for the classroom, it might be extrapolated that freedom of choice is not sufficient for arousing interest and liking, but that some knowledge and experience with the object is also necessary for interest to be aroused. A further finding of Costanzo et al. was that when an adult imposed constraints on playing with a chosen toy, the ratings by first grade subjects of the actor's liking for the toy were in line with the adult sanction. However, for sixth grade subjects the ratings for actor's liking of a toy was reduced when the adult approved of it and increased when the adult prohibited it. Thus it would seem that age or maturity might be a significant factor in interest and that perhaps at a younger age freedom of choice is of lesser importance for the child.

Another laboratory study by Monty and Rosenberger (1973) reported the effect of giving subjects the opportunity to choose response materials they wished to learn in a paired associate task. The researchers employed a paradigm which manipulated the amount of choice available to the subjects during the selection procedure and the point at which the choice took place. It was found that the amount of choice allowed subjects did not affect their learning of the paired associates so much as the point in the learning at which the choice was given. Giving subjects an opportunity to exercise choice prior to learning a paired associate list facilitated learning and this held true even if subjects were only allowed three choice items out of a total of twelve to be learned.

Freedom of Choice as Related to Attributes of Interest in the Classroom

In the past there have been few reports that show how choice as inherent in different types of classroom management is related to various measures of children's interests, attitudes and achievement. In a comparison by Katz (1968) of traditional and more experimental Head Start classes, the findings were that the generally accepted assertion concerning the affect of the child's choice of his own activities on his involvement and absorption in learning activities was not strongly confirmed by the evidence gathered in the experiment. In 1972 Katz suggested the need for more case studies. She described how in Open Education there is a strong emphasis given to a creative and interesting classroom environment and that open-informal classrooms would seem to provide for greater personal involvement. However, Katz warned that "classroom observations which assess the quality of individual children's ordinary and typical day to day experiences are needed" (Katz, 1972, p. 19).

The most feasible and readily undertaken studies in this area of varying amounts of choice have been those which have compared two different types of classes. However, a new interpretation of the data of these studies may be proposed. For the purposes of this study it is proposed that classes called "Open" are ones where the teachers attempt to implement the philosophy of Open Education and therefore offer their students a larger number of choices among activities than teachers in Traditional schools. A traditional class may be typified as offering a more limited number of choices among different student behaviors. Bearing these definitions of "Open" and "Traditional" in mind, as corresponding to larger and smaller amounts of freedom of choice, it can be seen that the empirical evidence in favor of allowing pupils the freedom of choice to follow their own interests and the affect of this on the student's intellectual, social and emotional development is not so positively overwhelming as theories of Open Education would seem to imply.

Ruedi and West (1973) examined pupil's self-concept in Open and Traditional schools. They looked at 4th, 5th and 6th grade pupils and found that "the idea that students in an open environment school would be significantly higher in self-concept was not demonstrated." Academic adequacy was significantly higher in the traditional 6th grade group than in the open environment 6th grade. However, in an open environment the pupils seemed to form better relationships with their teachers. Scheirer (1974), looking at grades 1 through 4, found no differences in children's achievement between open and traditional classes. However, she reported that with respect to self-concept and attitudes towards school both these constructs were significantly less positive in the open than in the traditional school. These inconclusive findings on the

advantages of the open classroom, where students are supposedly free to follow their own interests, are repeated in most of the studies comparing the two educational settings. Allen (1974) examined student performance, attitudes, and self-esteem in open-space and self-contained classrooms. The open-space environment was found to be associated with better language development at grade 5, but no clear evidence was found which supported the often cited advantages of open area classrooms affecting attitudes and self-esteem. At grade 3 the only difference between the two types of classes was that the pupils in the open-space class had a more favorable attitude toward teachers. Another study by Thomas and Campbell (1974) compared open and traditional programs at 7th grade and found that an open education experience produced no greater advantages on achievement and attitudes than the traditional program.

When significant effects are found which seem to favor the traditional approaches, often the researcher attempts to explain them away. One example of this dismissal of counter-evidence can be seen in Sullivan's (1974) study. He found that pupils in one particular open classroom did not surpass pupils in a traditional classroom in the majority of the creative thinking activities measured and he stated that this finding implied that children need to learn how to function in an open setting. Perhaps his most significant finding, however, was that the results of his pupil questionnaire showed that students from the traditional classroom preferred a traditional curriculum and pupils from an open classroom preferred an open-ended curriculum. However, his findings were based on observations of only two classes with a total of 48 pupils. A larger and more exhaustive study of varied educational settings is that undertaken by the Spencer Foundation (1974). Although this pilot study

examined only six classes with a total number of 115 pupils involved, it used a far greater battery of tests. The research involved the factorial analysis of 24 cover sheet items to do with the physical environment of the class, 181 "sign" category systems on children's behavior, and 71 global rating forms. The researcher attempted to obtain data concerning the relationship between individual characteristics of the pupils and how these characteristics were related to a variety of educational settings. Here again, as in Sullivan's study (1974), perhaps the most significant finding was that students who stated a preference for either one or another mode of education tended to persevere more and do better (as rated by their teachers) in their preferred type of class.

The Spencer Foundation's investigation also found many other interesting interaction effects. The boys' achievement tests scores showed better results in traditional than in open classes. Highest achieving girls did not prefer open classrooms. While boys from affluent homes did equally well in either type of educational setting, less affluent boys did better in traditional classes. Lower S.E.S. boys valued self-direction more in traditional classes, while higher S.E.S. boys valued self-direction more in open classes. These findings would seem to support teacher complaints of the difficulty of maintaining an open classroom with children from lower class backgrounds. The researchers suggested that open classes may be more consonant with the orientations and expectations of higher S.E.S. families and traditional schools with lower S.E.S. families. In addition, students in traditional schools gave lower preference for decision-making autonomy and open situations than children in open schools. Teachers' ratings of children's persevering achievement behavior showed that higher ratings occurred in

traditional classes and that these ratings were produced primarily by boys who had a high level of autonomous achievement orientation. The ratings also showed that children with high autonomous achievement orientation tended not to display so much persevering achievement behavior in open classes as perceived by their teachers. The researchers explained this discrepancy by suggesting that achievement orientation represented an active energetic style of learning which is inconsistent with the ability to buckle down to routine, striving tasks. They used this as an explanation of why students in open classes performed poorly in achievement tests which necessitate performing "routine, striving tasks."

These findings can be seen as giving very strong credence to the question under investigation in this study, namely that students in open classes are less able to concentrate and persevere in more routine class activities. The Spencer Foundation study (1974), however, made a distinction between involvement and perseverance and stated that involvement in activities was rated higher in open classes but that it correlated negatively with persevering behavior. This distinction between involvement and perseverance would seem to show that the Spencer Foundation study's definition of interest is not in line with that of Dewey or the definition used in this study. In fact, it would seem that they were confusing interest with momentary excitement if persevering behavior does not follow. According to Dewey (1913, pp. 14-15), interest and perseverance go together, hand in hand.

Summary

This chapter presented an exposition of the problem under investigation, namely the variability in pupils' levels of <u>interest</u> which may be observed in

different classrooms. The objectives of the study were stated as a) to examine variability in levels of interest and b) to attempt to account for this in terms of the variety of pupil behaviors teachers accept in specific classroom task-situations. The hypotheses to be tested were stated. The Review of the Literature discussed various ways of looking at interest and found that Dewey provided the most reasonable and apt description of what is meant by the construct interest. It was found that current educational philosophy did imply that freedom of choice and interest in work were related to learning and development in the child (Barth, 1971, pp. 121-25). The work that has been done on the topic of children's interest in their classroom activities and how this might be related to teacher behavior was described. Various attempts to measure the construct of interest were examined. Interest was related to choice both in the laboratory and as this might be implemented in open classrooms according to Open Education theory. It was suggested that research does not strongly support the claim that an open classroom, in which pupils are allowed the freedom of choice to pursue their own interests, provides advantages in learning and superior development of the pupils.

CHAPTER II

METHODS

In this chapter a detailed description of the procedures used in this study are presented. The sample of participating teachers, measurement instruments, and procedures used are described. The experimental design employed is presented for inspection.

Sample

Six first grade teachers from four schools voluntarily participated in this study. These teachers were taken to be a representative sample of a typical suburban teacher population. Three of the teachers were in their mid-twenties, and three fell between the mid-forty to mid-fifty age group. This age distribution can be taken as being representative of the teaching population as a whole, as many teachers in the late twenties to thirties age group tend to leave teaching to raise their families, returning again when their children are grown. All of the older teachers in this sample had interrupted their teaching careers for a number of years while their families were young. The number of years of teaching experience of this sample varied accordingly with their age. Teachers in their twenties had three to five years of experience while the older teachers had between fourteen to twenty years of experience. The three younger teachers all had at least two years of teaching in first grade. Two of these teachers had also spent a year teaching in grades two and three. All said they preferred to teach in first grade above other grade levels. Of the older teachers, all had between five and seven years of experience of teaching first grade and had spent some time

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teaching other grade levels ranging from kindergarten to grade 4. All the teachers had a Bachelor's degree in Education. Two of the three younger ones had Master's degrees, while the third was still working on her M.Ed. However, only one of the three older teachers had a Master's degree. None of the teachers had any higher qualification. Two of the three younger teachers had done all their teaching in the same school. All three older teachers had taught in three or four different schools. All the teachers in this sample had been local residents most of their lives.

The variations between the schools in which these teachers worked were taken to be representative of the typical variations between schools in a suburban community. Teachers I and II were in schools located in a poor area with a predominantly black population. This school was receiving aid under Title I and Title VII. There were 300 students and two first-grade rooms with 21 students in each. Teachers III and IV were in a school situated in an affluent upper middle class area. This school had 450 students and two first-grade classrooms. Of the 27 students in one room, half were bused from a low income neighborhood. In the other class of 25 children, a quarter were bused into the school. Finally, Teachers V and VI were from two suburban schools which had children from a wide socio-economic background including both lower and middle class children. The smaller school where Teacher V was located had a student population of 500 with three first-grade classes. There were 21 children in the class under observation, a quarter of whom were bused in from a lower socio-economic area. The second school where Teacher VI was located, with its student population of 600, was in a relatively new housing complex development which also drew lower and middle class families. There were four first-grade classrooms and in the class under observation there were 20 children, all of whom lived locally.

A random sample of 10 students was drawn from each teacher's class. This procedure was an attempt to represent the age, sex, race and IQ levels found in the classrooms. The same 10 children in each class were used throughout the observation period so that bias due to the selective dropping out or absenteeism of students was eliminated. If one child became ill and it was obvious from remarks the teacher made that he might be away from school for a number of days, then another child was selected randomly from the class to take his place. This substitution of subjects occurred only once in four of the six classes. The original sample of students was maintained throughout the study in the two other classes.

Instrumentation and Measurement Procedures

Teacher Measurement

The Open Program Structure Index developed by Dopyera (1971) was used to assess the amount of freedom of choice available to the students in a particular classroom. Dopyera found that this form of program description distinguished adequately among classrooms which had varying amounts of potential for accommodating to a child's interests. The information obtained in this schedule describes "the extent to which it is possible for a specific behavior, activity or event to occur in a program setting." Furthermore, Dopyera suggests that it gives an "objective appraisal of the opportunities offered or constraints within a system" (Dopyera, 1972).

This instrument asks the teacher to write down on a Program Description sheet a general time-table for the class activities which occur during a typical day. The teacher is then shown a list of fifteen different child behaviors and is asked to mark off by a + or a - whether she would allow her

students to engage in this behavior during each of the different scheduled class activities. The duration of each of the scheduled activities is noted. The number of activity minutes of the school day during which the teacher would allow the specified behavior to occur is summed for each of the fifteen behavior categories. The time that each of these behaviors is allowed in the class is then divided by the total time of the classroom day and a percentage time is calculated which reflects the extent to which this event can occur during the day. A modified formula developed from this measure by Campbell (1975) was used to compute the percentage of the total time of the school day during which the teacher allowed students the freedom of choice to engage in all the specified activities. The formula was as follows:

$$\left[\left\{\frac{\text{Time student is free to engage in all 15 specified behaviors}}{15}\right\} \div \text{Total time of the school day}\right] \times 100$$

The resulting figure was used as an indicator of the amount of choice between different behavioral responses allowed by the teacher in her class.

Interest Measurement

A three-point scale originally evolved by Katz (1968) and extended by the author was used to rate each child on his level of interest. Interest is defined here as a personal involvement in any particular activity, characterized by persistence, concentration and low distractibility by neighboring activities. The Interest Rating Scale* proposes three levels of involvement or absorption in work. These levels were:

*The actual instrument used is included in the Appendix.

Level 1. Low Interest		
	(Characterized as being routine activity)	An orientation to work which is routinized, going through the motions indifferently with no apparent interest or involvement.
Level 2. Medium Interest		
	(Characterized as being absorbed in the task)	A higher interest in the activity; the child may look up from his work occasionally, but he returns to it with some purposefulness.
Level 3. High Interest		
	(Characterized as being deeply absorbed)	The child is deeply interested and involved in whatever he is doing. He is completely undistracted by the activities around him.

A two-minute observation session was employed for each child, and during the last 15 seconds of this time a judgment was made as to the level of interest apparent in the child. In two minutes it was possible to get an all-encompassing idea of the child's interest, as in this amount of time he would have ample opportunity to be observed engaging in a variety of behaviors which would be used to make the overall rating. A period of five minutes was tried and found to be too long to allow the observer to condense all the behavior into one rating. On the other hand, a period of one minute would allow for only a fleeting impression of the child's level of interest. After the two-minute observation the child was rated on his predominating behavior as it related to the Interest Scale. If there was some doubt about the question of which level of interest was applicable, the observer gave the child the lower of the two possible ratings.

A second observer was trained in the use of this rating scale and accompanied the principle observer once to all six classes. The two observers made twenty simultaneous ratings in each class. Inter-observer reliability was later calculated using the Kappa coefficient.

The observer remained as unobtrusive as possible and tried to blend into the classroom flow of life. She did not speak to the children except to reply briefly to any question that might be directed to her, and the students rapidly seemed to become accustomed to having another person in the room. It is suggested that the children were able to ignore the presence of the observer and carry on with their activities as they normally would. Connolly and Smith (1972), in a study of the reactions of pre-school children to a strange observer, concluded that after a week of visits children would ignore the observer in their rooms and that this would happen most quickly if the observer were passive. For this present study the observer visited all the classrooms under observation several times before the start of this investigation. Therefore it was assumed that the students had ample time to acclimatize themselves to the presence of the observer and that this observation procedure did not bias the findings in any way.

The Interest Rating Scale measure was obtained in the following way. The number of High, Medium, and Low Interest ratings under each activity was totalled. The three frequency scores for each of the three levels of interest were then weighted in order to gain an overall measure of interest. Taking for example the category of creative activities, the observer might make the following ratings:

10 instances of ratings of a High level of interest (Level 3)

7 instances of ratings of a Medium level of interest (Level 2)

3 instances of ratings of a Low level of interest (Level 1)

Since Level 3 (High interest) was considered to be the most crucial and desirable, the frequency scores for this measure were doubled (they would become a score of 20 in the present example). The Medium level of interest (Level 2) was considered to be an acceptable average level so the scores were not changed in any way but were simply added on to the weighted total for the High interest level (the 7 would be added to the 20, making 27). Finally the frequency scores for the Low interest category (Level 1), which was considered to be an undesirable state, were doubled and subtracted from the total of the High and Medium interest scores (the score of 3 x 2 = 6 was subtracted from 27, leaving a total of 21). The final figure was used as an overall Level of Interest rating for this teacher on creative activities.

This weighting method of doubling the first figure, adding the second and subtracting the doubled third figure (2;0;-2) seemed to give the clearest picture of the differences between the various interest rating frequency scores. Using the 3;2;1; weighting method tended to diminish the differences between the final scores, whereas the method of squaring Level 2 and squaring Level 1 and subtracting it from the total gave extremely large number scores and a more exaggerated image of the differences between teachers.

The Activities and Their Definitions

Each child was rated on his interest in four specific tasks which were categorized into three activity groups along the "Open - Closed" dimension described by Jones (1974). The "Open - Closed" dimension refers to the number

of alternative behaviors a particular activity makes available to the student. As Jones said, "A classification which reflects the type of behavior appropriate to the activity rather than the formal content of the activity is more useful in addressing the kinds of experience offered children." This activity paradigm also complements the Dopyera measure which is an index of the amount of choice between alternative behaviors that the teacher allows her students. According to Jones, a closed activity is one which limits the goal of the activity to a single solution and the means of attaining this goal are compressed into a very few narrow methods. Relatively closed activities are ones where "either the goal or the mode of relationship but not both are constrained, the number of alternatives is greater but not unlimited." Open activities are ones where there are no constraints or limitations placed on either the goal of the activity or on the means of achieving it. The student is free to choose between a large number of acceptable behavior alternatives. Thus the four tasks under observation were ordered along a closed to open dimension in the following manner:

Closed activity: Workcards which require the child to make a written or symbolic response, using paper and pencil, to a written instruction. There is no freedom of choice given to the child to choose between different types of responses, e.g., number, writing tasks.

Relatively Closed:

a) Books, a task which requires the child to sit in one place and read printed matter. There is little freedom of choice given to the child regarding his goal, but there is variety in the means of attaining it. The student may look through the book, glancing only at the words, or he may concentrate on each page, reading aloud or silently.

b) Table games, activities where the child learns through action and manipulation. The student is not required to use paper and pencil to write anything; finding out by "discovery" and "experiments" come into this category.

There is a fairly wide choice in the responses available to the student, although the goal of the activity is fairly limited, e.g., puzzles, board games, tile sets.

Open activity: Creative activities which give a completely open choice with regard to suitable responses and goals, e.g., painting, pasting, collage, crayonning.

The specific tasks mentioned as implementing the activity categories were chosen for their generality and because it was assumed that they would be similar, readily identifiable and thus comparable in all six classes. Two specific tasks were included under the relatively closed activity category in order to test the hypothesis at a larger number of points on the "Open - Closed" dimension. It was assumed that books would be nearer the closed end of the continuum and table games closer to the open end.

Each subject was observed only while he was manifestly engaged in each one of the four tasks. For this observation schedule the observer continued to make a round of the ten randomly drawn subjects until all subjects had been rated on each activity. If the subject to be observed was not engaged in the activity the observer wished to rate, the investigator would move onto the next name on the list and continue going down the subject list until the situation to be rated occurred.

Two observations were taken in each category for each subject to allow for a calculation of the stability of the measure. In addition, the use of specific task categories provided a useful control against some of the bias that might arise from the individual differences inherent in the subjects under observation. Although certain students may be naturally more interested in one kind of activity than another, the personal preference bias involved in interest was considered to be curtailed by observing all subjects on the same

four tasks. Observations took place randomly both in the morning and the afternoon. Prescott and Jones (1967), in their study of group day-care centers in California, found that children's degree of interest and involvement remained fairly constant throughout the day and was affected by factors other than the time of day. In this present study the observations lasted over a period of three weeks with an average of two and a half days being spent in each class. During the time of the observations the observer had no knowledge of the teachers' scores on the O.P.S.I. schedule.

Design

The findings that were obtained by these procedures were summarized in the following way. The separate interest levels in each of the four tasks were summed in order to arrive at a general interest level for each teacher. The summed general interest level was compared to each teacher's position on the O.P.S.I. both graphically and statistically. The test of significance used was the Spearman Rank Order Correlation Coefficient. A further analysis on the ranked interest levels of each activity category across all six teachers was carried out using the Friedman Two-Way Analysis of Variance. The interest levels in each of the activity categories for all six teachers were also compared separately to the teachers' score on O.P.S.I.
In each case the relationship was analyzed statistically through the Spearman Rank-Order Correlation Coefficient and then was also portrayed graphically.

CHAPTER III

RESULTS

This chapter describes in detail the findings obtained when the two measurements, the Open Program Structure Index and the Interest Rating Scale, were applied to the six teachers and classes participating in this study. In addition, evidence as to the reliability of the observations is presented and some of the assumptions inherent in the design are discussed. The ratings of the six teachers on the O.P.S.I. are also evaluated against impressions of the classrooms gained by the investigator.

Reliability of Observations

Inter-Observer Reliability

Probably the most important question which needs to be answered before the results of this study can be judged is that concerning the reliability of the principal measuring instrument, the Interest Rating Scale. Inter-observer agreement was the procedure used to assess the reliability of the measure. A second observer was trained in the use of this rating scale. The two observers, the author and a fellow student, made simultaneous ratings of children's apparent levels of interest in an activity in each of the six classes. The Kappa Coefficient (Cohen, 1957), using data from two judges on twenty observation sessions, was used to calculate the reliability coefficient. The reliability coefficients for the ratings on the six teachers are presented in Table 1.

Looking at the reliability figures in the order in which they were obtained, which corresponds to the order in which each teacher's class was

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visited, a clear practice effect can be discerned with the inter-observer reliability increasing as the classroom visits progressed. However, the teacher's rank on the O.P.S.I. measure is not the same as the order in which they were observed. Therefore the practice effect can be seen not to have substantial bias on the findings of the actual interest ratings which were contemporary to the reliability measure in each class. Early and later observation sessions and likewise higher and lower reliabilities are interspersed fairly evenly along the whole dimension. Although the reliability ratings extend over a fairly wide range, the various coefficients are seemingly randomly integrated with each other and therefore it is proposed that the inter-observer reliability of the Interest Rating Scale is acceptable.

Table 1

Inter-Observer Reliabilities Presented in the Order in Which They Were Obtained and Compared to Each Teacher's Rank on O.P.S.I.

	Order of Teachers Observed					
	1st	2nd	3rd	4th	5th	6th
Reliability Coefficient	.54	.54	.68	.53	.69	.84
Teacher Rank Position on O.P.S.I.*	2	4	3	5	6	1

*The lower numbers (1,2) represent behavior-restricting teachers with low O.P.S.I. scores and the high numbers (5,6) represent behavior-accommodating teachers with high O.P.S.I. scores.

Stability of Ratings

Taking the ratings for each teacher on each activity separately, the 20 ratings in each Teacher/Activity category (such as Teacher 3/workcards) which were taken on the 10 children on two separate occasions were divided into two groups by assigning odd and even numbered ratings to different groups. The ratings for the three interest levels were then weighted by the same process as was described in the previous chapter, so that the number of ratings at Level 3 were doubled. Level 2 was not altered in any way but added onto Level 3 and ratings at Level 1 were doubled and subtracted from the sum of Levels 3 and 2. Thus, for Teacher 3 the overall levels of interest taken over two separate occasions on workcards for the odd and even numbered observation sessions were computed. Similar pairs of overall interest measures across the two observations on each teacher were calculated for all six teachers in each activity category. The Spearman Rank Correlation Coefficient (Siegel, 1956, pp. 202-06) was used to assess the stability of these measures. All three activity categories of open, relatively closed, and closed tasks were examined in this way. The combined tasks of books and table games both categorized as being relatively closed and which totalled four observations per subject showed a positive correlation of .728 across odd and even numbered observations. However, the closed task of workcards and the open task of creative activities with just two observation sessions per subject both showed small negative correlations of -.328 and -.3, respectively.

These low correlations led to the conclusion that the measure was not very stable over time. However, the low correlations may also be taken as an artifact of the design in that not enough observations were taken on each subject and activity to allow the measure to stabilize itself. This rationale is supported by the fact that when two sets of observations were combined (as

in the case of table games and books) to give four ratings on each student, a more respectable correlation was obtained. The implications of this lack of stability, which suggest that the findings be viewed with some caution, will be further discussed in the following chapter.

The Open Program Structure Index Reliability

The reliability coefficient of the O.P.S.I. has been calculated by Dopyera (1971) to be .78, using the Pearson Product Moment correlation between split halves. The originator developed this measure for use by student elementary school teachers in planning a hypothetical second grade classroom curriculum. Its validity has also been tested when this instrument was applied in a day-care environment. Here Dopyera (1972) found that the O.P.S.I. did distinguish adequately between two different types of rooms. Dopyera stated in the latter study that the instrument can be used at a variety of classroom levels. Campbell (unpublished doctoral dissertation, 1975) used this schedule in a wide range of elementary grade levels. For the purposes of the present study it was considered that there were not so many differences between the behaviors of pre-school and early grade levels that they would seriously threaten the validity of this measure. The activities specified in the O.P.S.I. are of such a nature that they would be apparent in any situation where children are gathered for some institutional purpose, e.g., Go to the bathroom; Receive personal attention from an adult. A complete Open Program Structure Index schedule sheet is given in the Appendix.

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Classroom Impressions of the Teachers Compared to Their O.P.S.I. Scores

On the whole the O.P.S.I. measure seemed to represent the six teachers' classroom techniques fairly accurately. However, in a comparative study such as this an observer could not help but make some very subjective judgments as to the amount of freedom the children were allowed in each class almost as soon as she walked through the door. This judgment was made on the basis of a variety of cues, the observer's past and present experience, and her conceptual framework concerning open and traditional classes. Certain of these subjective ideas did not necessarily concur immediately with the cues used by the O.P.S.I. measure to distinguish between different classes.

Teachers 1 and 2, who maintained more formal teaching styles, also were identified as the most behavior-restricting teachers on the O.P.S.I. dimension. Here the subjective judgment and the objective schedule scores agreed very closely. Teachers 3 and 4 appeared to this observer to maintain more "Open" classes where the students had a large amount of choice between various activities. Yet both these teachers fell in the middle range of the O.P.S.I. measure. This would suggest that they place a balanced level of freedom and constraint on their pupils. Teacher 5 received a high "behavior-accommodating" O.P.S.I. score and yet to all visible purposes she maintained her class along very strict, formal lines. Finally, Teacher 6 was considered by the observer to maintain an "Open" classroom; she in fact received the highest O.P.S.I. score, indicating that she allowed her students a great deal of choice among different classroom behaviors and demanded little from them in the form of constraints. The objective measure agreed with the subjective observer judgment and this class could be taken as reflecting the "laissez-faire" approach postulated by Bussis and Chittenden (1970).

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The discrepancy between the observer's impressions of Teachers 3 and 4 and their O.P.S.I, score can be resolved if it is considered that theories of Open Education propose that the child should be free to choose his activities within an environment that has been structured for learning and that these teachers' median O.P.S.I. scores reflect the constraints they impose to structure their classes for autonomous learning. After spending a short while in these classes it could be seen that the pupils' freedom of choice did have certain limitations in the forms of demands the teachers placed on their students to accomplish certain tasks during the day. Therefore, the difference between the subjective impressions and operational data can be resolved if it is seen as arising originally because observer and measuring instrument focused on different aspects of the same situation.

There was only one teacher whose position on the O.P.S.I. was hard to rationalize and that was Teacher 5. As with any questionnaire, there is always the problem that the interviewee will answer as she imagines the researcher would like her to answer, rather than as the situation really is. However, in talking with this teacher it appeared that she really did see herself as giving her students a lot of freedom. She was one of the older teachers in the sample and she commented on how she tried to follow the new trend of giving children more freedom although it was completely contrary to classroom practices when she first started teaching. Relative to her teaching style thirty years ago she saw herself as implementing an open classroom. It is not always easy to know what the teacher uses as a baseline when she says she considers herself to be "Open." In spite of these reservations, the levels of interest for Teacher 5 as measured by the rating scale did fall in with the pattern for more behavior-accommodating teachers and did not give rise

to any awkward discrepancies. Therefore it would seem that her score was consistent with the different variables that the O.P.S.I. attempts to capture in order to arrive at a teacher's score.

As mentioned previously in Chapter II, the O.P.S.I. score is actually a measure of the percentage of time during the classroom day that the teacher allows her students the freedom of choice to engage in the activities specified in the schedule. Thus this figure can range from 1 to 100 points. For the purposes of making the behavior-restricting, behavior-accommodating distinction, the score of 50 was used as a cut-off point. The score of 50 points on the O.P.S.I. measure indicates that for 50 percent of the school day the teacher allows for freedom of choice between certain activities and for the other 50 percent of the time she directs the students' activities. Thus Teachers 1-4, whose O.P.S.I. scores fell on or below 50, were classified as behavior-restricting teachers and Teachers 5 and 6, whose scores were above 50 points on the O.P.S.I., were classified as behavior-accommodating teachers.

It is important to remember that the O.P.S.I. does not intend to describe what actually happens in a class but is dependent on the teacher's own description of her classroom day. In the words of Dopyera (1972) it describes rather a "potential" for the occurrence of a variety of events and "The question addressed is 'What is the probability that if a child had a need or an interest, it could be met or accommodated by the program?'" (p. 7). In sum, the Open Program Structure Index was considered to be an adequate measure of teacher variance along a dimension of allowing for different amounts of freedom for their pupils to engage in a variety of classroom behaviors.

Data Relevant to the Research Hypotheses

Hypothesis Number One

The first hypothesis proposed that the more the teacher restricts the availability of choice between different classroom behaviors, the more the students display a higher level of interest in general than in classes where the teacher is accommodating to a wide variety of classroom behaviors. In order to test this hypothesis, the summed total of the overall interest ratings for all four tasks in each teacher's class was compared to the teacher's ranking on the O.P.S.I. (Table 2). The data were analyzed using the Spearman Rank-Order Correlation coefficient (Siegel, 1956, pp. 202-06). A correlation of -.943 was found between the two measures, a value statistically significant at the .05 level.

Table 2

O.P.S.I. Scores and Summed Overall Interest Ratings for the Six Teachers

Teacher	Position on O.P.S.I.	O.P.S.I. Score	Sum of Overall Interest Ratings
I	1	37.27	75
II	2	42.68	85
III	3	49.00	67
VI	4	50.00	65
IV	5	68.00	61
V	6	76.78	59
		Rs = -.943 (significant at the .05 level)	

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Thus the findings suggest that there was a strong inverse relationship between a teacher's ranking on a behavior-restricting to behavior-accommodating dimension and the level of interest evidenced in her class, so that as the teachers become more behavior-accommodating, the interest level in their classes in the four specified tasks decreases. This relationship is further depicted by the graph in Figure 1.

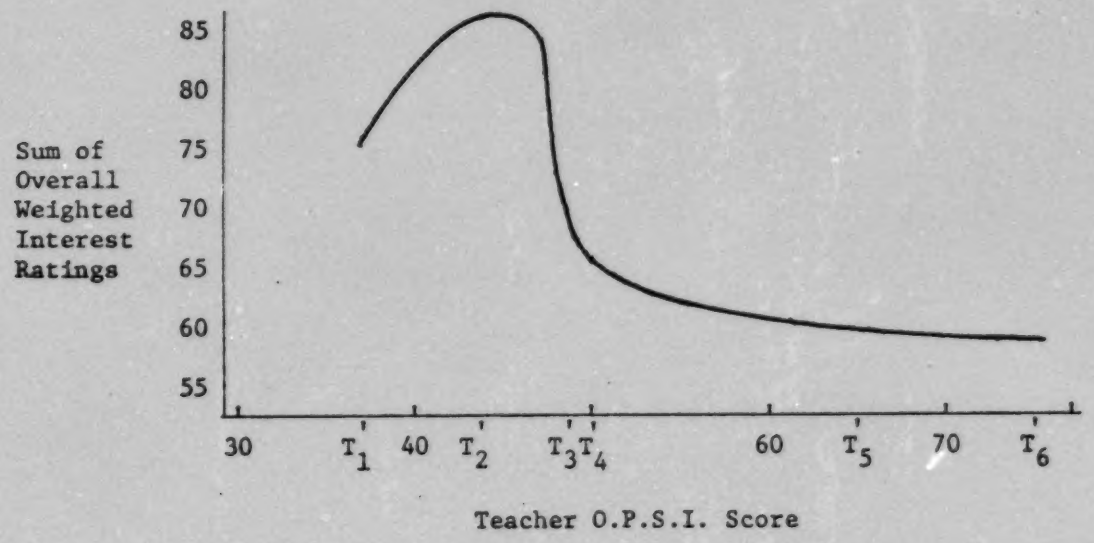

Figure 1. Teacher scores on O.P.S.I. graphed against summed overall interest ratings.

The findings relevant to the hypothesis were also examined using the Friedman Two-Way Analysis of Variance procedure (Siegel, 1956, pp. 166-72). This methodology was used to determine if there was any relationship between the six teachers in terms of their ranking on the level of interest displayed in their class for each of the three activities. The overall interest level scores for each activity were ranked across all six teachers with the teacher having the lowest overall interest rating receiving a rank of one and the teacher having the highest overall interest rating receiving a rank of six.

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This analysis tested whether the teacher's allowing freedom of choice had a systematic effect on the level of interest observed in her class, but it did not consider the direction of the relationship.

For this calculation the overall interest ratings for books and table games were summed and ranked as one measure. The ranked data are reported in Table 3. The results were not significant. This would suggest that no systematic relationship was found between teachers' O.P.S.I. score and their ranking on interest level in the three activity categories.

Table 3

Application of the Friedman Two-Way Analysis of Variance to the Ranked Overall Interest Ratings on Three Activity Categories Across Six Teachers with Varying O.P.S.I. Scores

	Teacher Position on O.P.S.I. and O.P.S.I. Score					
	1	2	3	4	5	6
Activity	37.27	42.68	49.00	50.00	68.00	76.78
Closed (workcards)	4	4	4	6	2	1
Relatively Closed (books and table games)	5	6	2	1	3	4
Open (creative activities)	3	6	4.5	4.5	2	1
Sum of Ranks	12	16	10.5	11.5	7	6

$X^2 = 6.258$ (not significant at the .05 level, given 5 df.)

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One explanation for these results, which are apparently contradictory to the findings in Table 2, is that there were an insufficient number of observations made to provide enough data to give the necessary power to the two-way analysis of variance. In addition, the number of tied ranks in the data also lessened the potency of the analysis and tended to push it in a conservative direction. The fact that there were not enough rated observations on each student in each activity to achieve stability of the measure over time may also account for the null results in this analysis. This problem will be discussed in a subsequent section of this thesis.

Hypothesis Number Two

The second hypothesis stated that students of behavior-restricting teachers show a higher level of interest in closed activities than students of behavior-accommodating teachers. The overall interest ratings for workcards in each class were compared to the teacher's position on the O.P.S.I. dimension and these results are reported in Table 4. An analysis of the data using the Spearman Rank-Order Correlation coefficient determined the correlation to be negative with a value of -.4857.

The results of the correlation show that there is no significant relationship between a teacher's position on the behavior-restricting, behavior-accommodating dimension and the overall interest level shown by the students in the activity called workcards. However, a visual inspection of the actual figures would seem to suggest a trend in the direction of an inverse relationship existing between the amount of freedom of choice between different behaviors that a teacher allows in her class and her students' overall level of interest in a closed activity such as workcards. Thus, as the teacher becomes more behavior-accommodating, the level of interest displayed in workcards decreases. This relationship is depicted graphically in Figure 2.

Table 4

Overall Interest Ratings in Workcard Tasks for Students of Teachers Who Vary Along a Behavior-Restricting, Behavior-Accommodating Dimension

Teacher Position On O.P.S.I.	O.P.S.I. Score	Overall Interest Level Shown on Workcards
1	37.27	13
2	42.68	13
3	49.00	13
4	50.00	15
5	68.00	8
6	76.78	1

Rs = -.4857

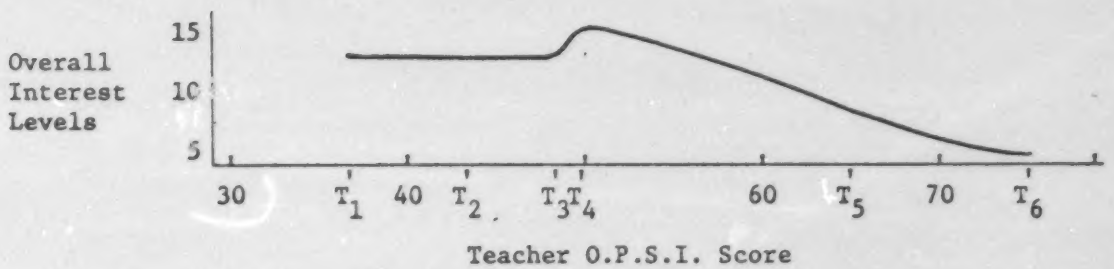

Figure 2. Overall interest ratings for students involved in workcard tasks in the classes of six teachers with varying scores on the O.P.S.I. dimension.

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Hypothesis Number Three

The third hypothesis suggested that students of behavior-restricting teachers show a higher level of interest in relatively closed activities than students of behavior-accommodating teachers. This hypothesis was tested by comparing the students' overall interest ratings on relatively closed activities such as books and table games to their teachers' scores on the O.P.S.I. measure. The actual data for the combined levels of interest in both tasks are shown in Table 5. A correlation of the teacher scores and interest levels using the Spearman Rank-Order Correlation Coefficient yielded a negative value of -.4285. This result showed that there was no statistically significant relationship between the two measures.

Table 5

Overall Interest Ratings on Books and Table Activities for Students of Teachers Who Vary Along the O.P.S.I. Dimension

Teacher Position on O.P.S.I.	O.P.S.I. Score	Overall Interest in Books	Overall Interest in Table Games	Summed Levels of Interest
1	37.27	18	25	43
2	42.68	22	24	46
3	49.00	16	17	33
4	50.00	19	10	29
5	68.00	22	13	35
6	76.78	22	19	41

$R_s = -.4285$

When the relatively closed activity category was divided up into its two component tasks, the data on "books" suggest that the student's level of interest in a relatively closed activity such as books was fairly independent of the amount of freedom of choice a teacher allows in her class. Contrary to the prediction made in the hypothesis, the actual figures occurring in the data would seem to suggest that teachers who have high O.P.S.I. scores (Teachers 5 and 6) and therefore tend to be more accommodating to student behavior have higher levels of student interest in books than behavior-restricting teachers.

Although the overall interest levels in table game tasks were lower for students of behavior-accommodating teachers (Teachers 5 and 6) than the levels of interest evidenced by students of behavior-restricting teachers (Teachers 1 and 2), the data did not show a trend for the decrease to occur gradually from one level to the other but rather the extreme pairs of teachers had the highest overall interest ratings while the middle pair of teachers (Teachers 3 and 4), who had a median score on the O.P.S.I. measure, both showed evidence of a sharp drop in interest in table games. Figure 3 combines the overall interest levels of the two activities and relates them to the position of the six teachers on the O.P.S.I. dimension in order to present a clearer picture of the relationship between levels of interest in these two activities and how this varies with the amount of freedom of choice a teacher allows in her class. The summed levels of interest follow the pattern of interest ratings seen for table activities. That is, they similarly showed a sharp drop in interest for Teachers 3 and 4 from an initially high level and a rise in interest as teachers become more behavior accommodating.

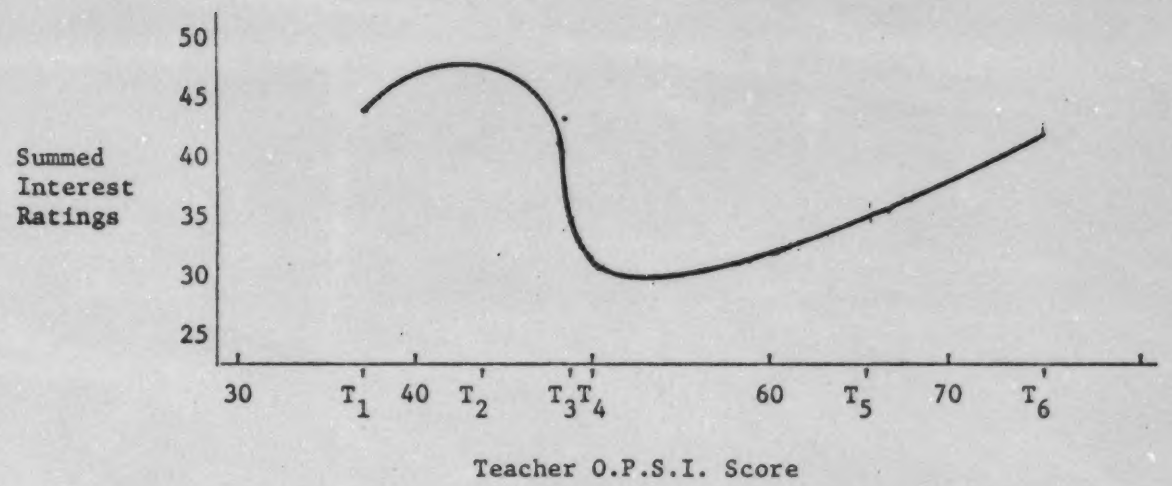

Figure 3. Summed interest ratings for students occupied in relatively closed activities graphed against their teacher's O.P.S.I. score.

Hypothesis Number Four

The fourth hypothesis put forward the proposition that students of behavior-restricting teachers show a higher level of interest in open activities than students of behavior-accommodating teachers. When the findings for the level of interest in creative activities as compared to the teacher's position on O.P.S.I. were analyzed through the use of the Spearman Rank-Order correlation coefficient a value of -.6142 was determined. This result was indicative of a non-significant relationship. The actual data are given in Table 6.

Although the correlation of the two measures was not significant, the pattern of the data for interest levels in open activities characterized by creative tasks followed the general trend first seen in the visual inspection of interest levels in workcards (Figure 1). That is, the numerals depicting the high levels of overall interest in creative activities occurred among the more behavior-restricting teachers (Teachers 2, 3, 4) and as the amount of behavior freedom allowed by the teacher increased the numerical level of interest in

open, creative tasks decreased. This negative trend is graphed in Figure 4 to give a more vivid picture of the covariation.

Table 6

Levels of Interest in Creative Activities in the Classrooms of Six Teachers with Varying Scores on the O.P.S.I. Dimension

Teacher Position on O.P.S.I.	O.P.S.I. Score	Overall Interest Level in Creative Activities
1	37.27	19
2	42.68	26
3	49.00	21
4	50.00	21
5	68.00	18
6	76.68	17
	Rs = -.6142	

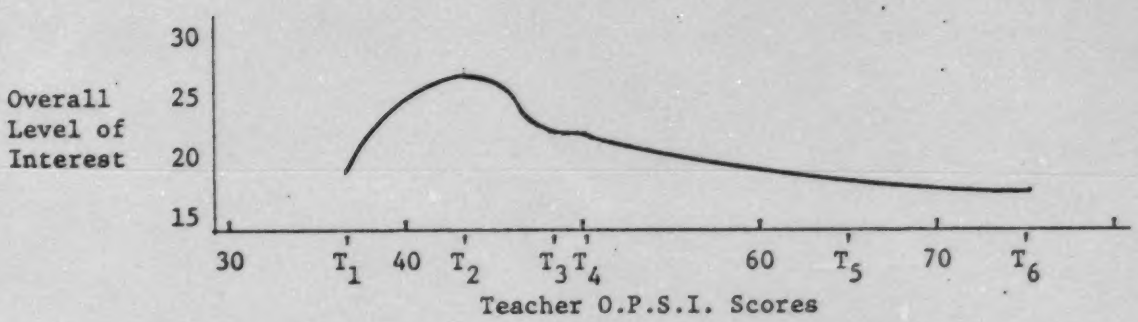

Figure 4. Students' overall levels of interest in creative tasks related to their teacher's position on the O.P.S.I.

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Summary

In this chapter some of the assumptions of the study and its main findings were discussed. The problem of the reliability of the measures was examined and caution in interpreting the data was indicated. The results themselves showed a trend for the general levels of interest to be high for behavior-restricting teachers and to decrease as teachers became more behavior-accommodating. Under visual inspection the closed activity of workcards showed a trend in the same direction, as was predicted by the hypothesis, although the relationship was not confirmed by the correlational analysis. However, interest levels in the relatively closed activities of books and table games did not bear out the hypothesis and seemed to be relatively independent of the amount of freedom of behavior that the teacher allowed. Finally, the findings for open, creative activities did not show a statistically significant relationship between Teacher O.P.S.I. Score and level of interest but the unanalyzed numerical data seem to follow the trend predicted by the hypothesis, in showing a reduction in the level of interest as teacher accommodation to student behavior increased.

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CHAPTER IV

CONCLUSIONS

Summary

This study examined the relationship between varying levels of certain types of teacher restriction or accommodation of student behaviors and the level of interest shown by the pupils in three categories of activities, closed, relatively closed and open. The six first grade teachers in this study each filled out a questionnaire called the Open Program Structure Index (Dopyera, 1972). This schedule gives an index of the extent to which a teacher imposes constraints on, or provides opportunities for, a variety of different behaviors in her class. The score each first grade teacher received on this measure was distributed along a dimension of provisioning for freedom of choice, with teacher restricting behavior at one end and teacher accommodating to student behavior at the other.

Ten pupils were randomly selected from each teacher's class. Each student was rated on observed level of interest while they were engaged in each of three separate types of activities. The interest ratings were made by means of a three-point Interest Rating Scale. With this instrument data were obtained on persistence in activity, ease of distractibility, and whether contact with others was work related or not. Subjects' behavior was rated as being evidence of either a High, Medium or Low level of interest. An attempt was made to ascertain the extent of inter-observer reliability in the use of this instrument.

Four tasks were under scrutiny in this study. These were workcards, books, table games and creative activities. Each was defined along an

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open-closed dimension. It was suggested that these tasks varied along a continuum of the availability of choice between different responses that each offered to the student. Workcards were considered to offer the least amount of choice in behavioral responses, and therefore were categorized as a more closed activity. Books and table games offered slightly greater choice, but were still somewhat restricted. Both were categorized as being relatively closed. The data on these two tasks were collapsed together in the analysis. Finally, creative activities offered the greatest possible amount of choice between possible behaviors and were considered as relatively more open activities.

It was predicted that students in the classes of more behavior-restricting teachers would show evidence of a higher level of interest in all four tasks than students of behavior-accommodating teachers. The same pattern in the levels of interest across all six teachers was also predicted for each activity on its own.

The findings showed that when all the interest ratings across all four tasks were summed and compared to the six teachers' O.P.S.I. scores, by means of the Spearman Rank-Order Correlation Coefficient, there was a significant negative correlation between the two measures. However, when the same data were analyzed by the Friedman Two-Way Analysis of Variance, which examined the rankings of the six teachers' levels of interest on each activity, no significant relationship was found between a teacher's score on O.P.S.I. and the apparent level of interest in her class, although a visual inspection of the data indicated a trend in the direction of the more behavior-accommodating teachers having the lower levels of interest. The same null results held true when the Spearman Rank-Order Correlation Coefficient was applied to overall

interest ratings on workcards alone, as compared to teacher's position on O.P.S.I. However, when the figures obtained in the data were plotted on a graph, a trend could be observed which implied that interest levels fell as teachers became more behavior-accommodating. The correlations of the combined interest levels in books and table games, and interest levels in creative activities, with teachers' O.P.S.I. scores also yielded non-significant results. The graphs which plotted the numerical data on interest levels in books and table games showed no easily discernible differences between overall levels of interest for the six teachers on the books and table games tasks apart from the fact that Teachers 3 and 4, who had median O.P.S.I. scores, both showed a marked decrease of interest. However, students in behavior-restricted classes did portray higher measures of interest in creative activities in the graphed data.

Conclusions

The results of this study generally support the hypotheses under investigation. The principal hypothesis was that the more the teacher restricts the availability of choice between different classroom behaviors the more the students display a higher level of interest in general than in classes where the teacher is accepting of a wide variety of classroom behaviors. The data would seem to support this hypothesis as they show a large negative correlation between level of interest and the teacher's score on the O.P.S.I. measure. It may be noted that Teachers 3 and 4, whose scores on the O.P.S.I. were very close to each other, also showed similar general interest levels. These findings provide somewhat of a check on the interest measure. Although these teachers were in two different schools, it is readily

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noticeable that Teacher 4 continues the downward trend in the level of interest which was associated with Teacher 3.

When interest levels in specific tasks are examined, the data can be seen to throw a revealing light on the remaining hypotheses. In the case of workcards, the analysis of the data support the hypothesis. Yet when the numerical data were examined visually they did seem to show a trend for students of behavior-restricting teachers to display a higher level of interest in closed activities than students of behavior-accommodating teachers. The fact that the three more restricting teachers all had similar totals for overall level of interest in this task would seem to allow the experimenter greater confidence in confirming the trend.

The third hypothesis was that students of behavior-restricting teachers would show a higher level of interest in relatively closed activities than students of behavior-accommodating teachers. This hypothesis was not supported by either the numerical, descriptive data or when the results were analyzed by means of the Spearman Rank-Order Correlation Coefficient. There was no clear evidence of a trend in the pattern of levels of interest which might be considered similar to that predicted by the hypothesis, rather the descriptive data would seem to suggest a "U"-shaped curve with higher levels of interest occurring in the classes of teachers with the more extreme O.P.S.I. scores. The data for books and table games can also be examined as separate task scores. The conclusions for the books activity would seem to be that there is no difference between behavior-restricting and behavior-accommodating teachers in the levels of pupil interest evidenced in this task. Rather, the trend would seem to suggest that the more behavior-accommodating teachers who have higher O.P.S.I. scores maintain higher interest in books among their students. Other studies such as

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that of Crandall (1973) have reported similar conclusions in finding no difference between reading attitudes and reading achievement of first graders in open concept and formal classes. The data for levels of interest in table games across the six teachers suggests the conclusion that again a "U"-shaped curve is the best way of describing this relationship. A possible explanation for this might be that in behavior-restricted classes table games make a welcome change from the more closed activities which are available to the child, thus the level of interest in this task is high. This initially high level drops as more freedom of choice is allowed and the child perhaps diverts his attention to exploring the boundaries of the variety of the different behaviors available to him. The fact that interest in table games rises again as the amount of alternative teacher-acceptable behaviors increases possibly reflects the child's search for some structure, as might be found in the rules of a game, in a fluid and relatively structureless environment.

Finally, the fourth hypothesis proposed that students of behavior-restricting teachers show a higher level of interest in open activities than students of behavior-accommodating teachers. The data support the hypothesis in showing a trend for levels of interest in creative activities to decrease as the teacher's O.P.S.I. score increases. Again, Teachers 3 and 4, whose scores on the O.P.S.I. were very close, are identical in the level of interest among their pupils in creative activities, which would seem to give greater credence to this measure.

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Discussion of the Design of the Study

This initial investigation of a topic as complex as that of levels of interest in classroom activities can really only be considered as an exploratory test of the hypothesis under examination. There are many facets of all parts of this study which could be improved.

The Open Program Structure Index

The selection of the six teachers and their placement along the availability of freedom of choice dimension was quite accidental apart from the constraints inherent in the O.P.S.I. schedule. That is, the six teachers could all have just as easily fallen around the same point on the O.P.S.I. measure, as they were not initially selected specially for their differences. The fact that their scores were widespread on the O.P.S.I. measure is desirable and increases the strength and generalizability of the trends described in the findings. However, an improvement on this design would be to give the O.P.S.I. measure to a large number of teachers and then select only those who fell at certain key points on the measure to take part in the main study.

The Interest Rating Scale

The Interest Rating Scale is presented as an instrument with great potential but in need of further refinement. A re-examination and re-definition of the criteria which distinguish each point on the scale is needed. In addition, more refined behavioral as well as theoretical descriptors of "interest" would be useful. Thus, behavior categories such as "lolling back in chair, looking at neighbors, fidgeting or scuffing feet on floor" could be used as indicators of low interest. On the other hand, categories such as

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"sitting forward in chair, leaning over work and looking at work, scratching head" could be used as indicators of a higher level of interest. A category check sheet of behaviors related positively or negatively to interest-disinterest could then be developed. This could be implemented by employing the method of scan sampling to mark off which type of behavior any student in the class was engaged in at any point in time. Through the use of a behavior check sheet such as this and through scan sampling, a measure of the apparent level of interest of the class as a whole could be taken during any one observation period. This category system would help to reduce the extent to which subjectivity influences the rating of the degree of intensity of interest apparent in each student. The behavior categories would be used as indicators of varying levels of interest and a system for collapsing the data into a general level of interest could be devised in a fashion similar to the Flanders Category System (Ober, 1971) using a matrix form to compare categories of behaviors and the levels of interest of which they are the indicators across teachers. The frequencies of behaviors that fell into the different categories could be summarized in an Interest/Disinterest Ratio.

A design of this form would also help to overcome the problem of stability of the measure as it would be possible to obtain more ratings if a shorter observation time period were used. In addition, obtaining behavior scores on all the students in the class would also help determine more accurately the stability of the interest variable. In the present study, an observation period of two minutes per child seems to have been too long. The long time sample meant that the variety of different behaviors which sometimes occurred during this interval and which sometimes indicated different transient levels of interest all had to be conglomerated into one rating.

Having a larger number of separate ratings over a shorter time period would likely give a more accurate picture of general levels of interest in the class. The need for examining specific activities would also be obviated, as interest would be measured by purely behavioral cues. This shift in attention from the specific student and activity to the class as a whole, viewed at any time of the day, would seem appropriate since the basic variable under consideration is the level of interest apparent in any teacher's class as a whole, and not an individual child's capacity for sustained interest. Insofar as the present study concentrated more heavily on individual students in each class sample, variations in personality differences and differing study habits could easily have been deleterious to the stability of the measure. That is, variations in personality factors and individual differences would affect the stability of the results more adversely where the sample of subjects was relatively small and only two measures were taken on each.

The Activities and Their Potential Interest Levels

Another factor which might have affected the results was the inter-class variability of the tasks observed. For some students, creative activities such as pasting and cutting out were a rare treat, while for others they were an everyday option. This was especially true in the case of table games for Teacher 5. During a number of sessions spent in that class the observer found very little evidence of any table games or other such activities available to the students. Thus it was not possible to control strictly the interest potential of each of the specified tasks across the six teachers, as this variability was inherent to the structure and curriculum organization of each teacher's class. It was noticeable that the interest stimulus potential of even a supposedly straightforward task such as workcards would vary from class

to class. Some teachers (notably those in the more open classes, Teachers 3, 4 and 6) made their own workcards and related them more to the children's and class activities. They also changed the sets occasionally and for these reasons, which interplayed with a novelty effect, the workcards activity could be said to have a higher interest stimulus potential in the classes of Teachers 3, 4, and 5 than in the classes of more formal teachers (Teachers 1, 2 and 5) who continued to use the same work-book where there was very little variation in style or content. This is analogous to the distinction made by Dewey (1913) between making a task interesting to the child and letting a child follow his own interests and helping him to develop these further. From an impressionistic viewpoint it would seem that the more "open" teachers attempted to make the task interesting while the more formal teachers did not embellish the tasks to make them more attractive but rather seemed to rely on the fact that the child would realize the meaningfulness and importance of the task for his own personal growth. The formal teachers assumed that this knowledge of the significance of the activity would give rise to sufficient intrinsic interest to motivate the child to accomplish the task. Bussis and Chittenden (1970, p. 16) suggested that this centering on the child rather than the activity lies at the heart of the education process. Thus the results which show levels of interest to be higher for behavior-restricting teachers, who tended to be more formal, also give confirmation to the proposition that students in classes where there are fewer different and varied stimuli constantly impinging on them will be better able to concentrate and persevere in more mundane activities.

One of the most obvious factors in the classroom observation sessions was that in some classes students engaged in the four observed tasks with far less

frequency than in other classes. Whereas in Teacher 4's class it was possible to rate each subject at least once on each activity within a single day, this was very much an exception. In no other class in this sample did the students engage in all four tasks within one day. Generally creative activities (and sometimes table activities) would be excluded. These activities would be scheduled for a particular day and time or would be put off until the student had finished all his assigned work. This variable, namely the frequency of the occurrence of various activities in the class, is a topic worthy of study on its own. A reasonable hypothesis is that the less frequently the activity occurs the more potential interest stimulus it contains. This could be related to the findings of the present study where students of more formal behavior-restricting teachers, who did not have very frequent opportunity to engage in creative activities, showed a high level of interest in them.

A future design might take into account the variance in interest stimulus potential of the various activities in different schools. The stimulus value could be measured in terms of frequency of occurrence and appropriateness to the classroom context. A two-way analysis of variance could be used to examine the students' level of interest in an activity as compared to the activity's interest stimulus value. This would be a way of testing the feasibility of the distinction between making a task interesting and drawing out the student's own interests through the task.

Some Speculations on the Construct of Interest and Its Measurement

In the present investigation one of the criterion variables discriminating between medium and high levels of interest was whether the subject contacted any other individual during the time he was occupied with the task,

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or whether his engagement in the activity was a personal and solitary one such that the depth of his concentration and persistence in the activity made him oblivious to the ongoing flow of life around him. This latter situation was considered to be evidence of a high level of interest according to the Interest Rating Scale, while the former situation, where there was social contact, was considered to be evidence of a medium interest level. The problem with this criterion was that in classes where the teacher was attempting to implement Open Education methods, although there was evidence of persisting involvement with activities, there was also a continuous flow of social contact and chatter. For this reason there was a high frequency of Level 2 (medium interest) ratings on the Interest Scale in the classes of the more behavior-accommodating teachers. This is not to imply that all classrooms where the students have freedom necessarily encourage inconsistent and flighty behavior. In the classes of those teachers who received a high O.P.S.I. score there was also evidence of interest and involvement in the tasks on the part of the students. Although in this situation the child did work and talk at the same time, it is debatable how much of his motivation came from pure interest and involvement in the activity and how much from other variables such as social reinforcement, showing off his work to other children, and general feelings of cooperation and competition among students. Individual factors such as leadership qualities and personal incentive, which determined whether the child was a "doer" or just one who looked on, could be confused with his level of interest. It was noticeable that in the behavior-restricted classes students did not have the option of just "looking on," but rather they all had to be "doers."

Recently work has been done by Beller et al. (1972) comparing social reinforcement and intrinsic reinforcement as a means for motivating learning.

Intrinsic reinforcement may be typified as the sense of personal involvement and satisfaction a student might derive from being occupied by a task. Social reinforcement can be characterized as the support or encouragement a student receives from adults and peers to engage in a task. These two types of motivators may be seen as analogous to the two types of interest described above. The present study also proposes that interest itself is a motivation for learning and that the two types of motives, socially reinforced interest and intrinsic personal interest, can be distinguished in the classroom.

The analogy may be carried further to include the distinction made by Dewey (1913) (mentioned earlier in this discussion) between an adult making a task interesting for a child and the child being "naturally" interested on his own in an activity. Dewey felt that only the latter case is an example of true interest as when he said,

> When things have to be made interesting, it is because interest itself is wanting. Moreover, the phrase is a misnomer. The thing, the object is no more interesting than it was before. The appeal is simply made to the child's love of something else. He is excited in a given direction with the hope that somehow or other during this excitation he will assimilate something otherwise repulsive (pp. 11-12).

Beller suggested that all students learned more easily under external social reinforcement than under intrinsic reinforcement. These findings would seem to reject Dewey's belief in true interest which furthers the individual's growth as coming from within the child and being "an identification in action and hence in desire, effort and thought of self with objects" (p. 90). Beller (1972) stated that learning a cognitive task under intrinsic reinforcement made greater demands on a child's ability than did learning under extrinsic social reinforcement. However, he explained this conclusion by saying that the type of reinforcement used affected nursery children more than third

graders and that the performance of the younger children varied more under intrinsic, non-social reinforcement than that of the older children. From these findings he concluded that intrinsic motivation was a more mature form of motivation. This conclusion returns to the idea of "true interest" as maintained by Dewey and the definition of interest on which this study is based, namely the "putting forth of activity independently of any external inducement" (Dewey, 1913, p. 6).

A future design for any further investigation of the construct of interest would have to distinguish the different behavioral categories as being indicators of either a social or an intrinsic type of interest, as well as of intensity of interest. The two forms of interest motivation could then be summed vertically with greater weight being given to the more mature form of intrinsic interest motivation. However, even with this improved design the findings of the present study would still be confirmed; namely, that personal involvement arising from intrinsic interest in an activity is more evident among students of behavior-restricting teachers than behavior-accommodating teachers.

A main assumption of this study which needs to be examined is that of the validity of the instrument used to rate interest levels. The reliability of this measure was shown to be fairly constant across two observers, and yet the ratings were dependent on a high level of inference on the part of the observers who made the judgment of apparent level of interest. Rosenshine (1973) argued that high inference rating scales do demand that the observer process a wide variety of unspecified cues in order to arrive at a rating. Nevertheless, various studies that he reviewed suggested that rating scale measurements give more statistically significant results than either category or sign measurement

instruments. In addition, he stated that measures of observer agreement were comparable to those obtained using category systems. Rating scales can sometimes lead to a distortion of reality due to their subjectivity, but Rosenshine argued that this is not always necessarily a bad thing. It is often through a distortion of reality that certain variables appear more conspicuously and this can often be an aid rather than a hindrance to further hypothesis formulating and research. Rosenshine pointed out that all category systems are the product of personal judgment and intuition in terms of the size of units that are employed, the time measures involved and the final interpretation of results. Furthermore, it is almost a truism to say that carefully controlled laboratory studies can also be criticized from the standpoint that they do not adequately represent "reality." Rosenshine summed up his arguments by saying that measurement systems cannot be fully validated on the basis of their scores but need generalizations developed from experimental and correlational studies to confirm the solidity of their foundations. In this way, the present study can be seen as a point of departure for further research.

The underlying problem of the rating scale concerns whether "true" interest is being measured and what the "true" variance is between different levels of interest. Lerner (1959), in an article on the problems of evidence and inference, has put forward a very dramatic conception of truth based on the two new concepts we have for dealing with the theory of knowledge. These are the concepts of Statistics and Psychology. Lerner suggests that "Truth is the closest statistical approximation to the observed occurrence of events." This statement can be interpreted as saying that the validity of a measure can be viewed in terms of the statistical probability of the occurrence of the phenomena which is being measured. That is, all that can be said about the true variance in the appearance of a phenomena is that it occurs under these

particular conditions with "such and such" level of probability. The true level of interest in any one teacher's class would be the probability with which that level of interest occurs in a normal distribution of interest levels.

A criticism of this view of validity might be that it might not allow the researcher to put forward any generalization or theory about the observed phenomena, if validity is seen just in terms of a statistical probability. It is, in fact, the jump from the statistical probability result to the general statement about human beings that is the most highly inferential, introspective and also possibly invalid part of the whole study. However, this process of inference from statistical results to conclusions about the study is a respected and accepted process which suggests that inference in general, which includes the specific instances of inference as employed in making ratings on an Interest Scale, is a valid part of the scientific method. The closing words on the problem of subjectivity and validity can be given again to Lerner, who summed up the matter of the leap from evidence to inference in the following way,

> Introspection helps to close the gap between the body of evidence assembled and the inference drawn from this evidence. Closing this gap is the meaning of rigor. Introspection is then rewarded in appropriate scientific manner, by being called into question and subjected to test (Lerner, 1959, p. 17).

Discussion of Conclusions

This study may be viewed as a preliminary examination of the concepts of freedom of choice and interest and their relationship to each other. The small sample of teachers used in this study was considered sufficient to

show that there is some validity to an investigation of these constructs. Although the analysis of the data yielded null results and thus the hypotheses could not be supported statistically, it is suggested that considering the size of the sample, the tests of significance were too powerful an instrument to use and they could not be sensitive enough to allow any trends in the data to emerge. It is proposed that the unanalyzed numerical data suggest that where the teacher places some restrictions on the amount of alternative behaviors that children in her class may engage in, her students will display higher levels of interest in the classroom activities. That is, they will be more able to concentrate and become personally involved in the tasks as compared to students who are allowed a lot of choice between various teacher-acceptable behaviors.

One problem remaining with this conclusion is that it implies a causal relationship between teacher levels of behavior restrictions and students' level of interest, without supplying any concrete evidence as to which is the cause and which variable is the effect. If the teacher is viewed as the prime instigator of the process of life in the classroom, then it is plausible to argue that the cause is the teacher's providing freedom of choice and that the effect of this is seen in the level of interest apparent in the students in her class. This is the view which this study maintains, and although the conceptual function of the two variables could be reversed, it is argued that the reversed position would be the more unlikely one. The argument that teacher behavior is an effect of student interest would be especially untenable in the case of classes where the freedom of choice between different behaviors is more highly restricted. Here it would seem illogical to postulate that the cause of the teacher's highly restrictive behavior is the students' high level of interest in the classroom activities.

Alternative explanations of interest, which is essentially characterized in this study as "on-task" behavior, could be seen to lie in motives such as the motive to escape punishment or to earn rewards. However, this study proposes that the principle basis for on-task behavior lies in intrinsic motivation and not in external reinforcers of either a positive or negative kind.

The significance of the conclusion of this study can be seen more clearly if the two variables of teacher acceptance of varying amounts of diverse classroom behaviors and student interest in different activities are viewed in the light of the constructs which they represent. A lot of work has been done on permissive versus authoritarian teachers, but this is not the issue here. The crucial concept in this study is that of freedom of choice, and what effect this has on a student's ability to become personally involved in an activity.

One frequently cited theory linking these two constructs says that where children have a large amount of freedom of choice they will engage in the activity most interesting and meaningful to them (Barth, 1972, p. 123). However, a second possible explanation which this study would like to proffer is the theory that where children have a large amount of freedom of choice, they become less capable of staying with any one activity, as there is always some new and different possibility beckoning their attention. It has been said that all threshold levels are learned and this is in keeping with the tenor of this study, which would argue that because of the difficulty that students in a wide-choice situation have in focusing their attention and persisting in one activity, the pupils learn to have a high interest threshold. That is, they learn to be continuously looking for something new and different

so that it takes greater and greater amounts of novel and "exciting" stimuli to arouse their interest. Conversely, if children do not become accustomed to a great deal of freedom in terms of the behaviors which their teacher finds acceptable in her class, the conclusion would seem to suggest that they are more capable of concentration and persistence in their personal involvement with one particular activity, as is described in this study's definition of interest.

The theory which supports this explanation of the conclusion comes from Katz (1973), "Some notes on the distinction between education and excitement." Katz suggests that everyone has a norm for their own level of activity. When an "exciting" event occurs, it pushes the activity level high above the norm, but when the exciting event is over a reaction sets in, rather like the effect of a drug wearing off, and the activity level of the individual falls below his norm. From then on, an even greater amount of excitement stimulus is necessary to reach a similarly high activity level. Thus the search for new and exciting activities becomes ever more frantic and damaging.

This study proposes that giving the child a great deal of freedom of choice is also exciting and stimulating, but that as the child's interest in one activity fades, and he has the opportunity and freedom to go to another, which of necessity must seem to the child to be more interesting than the first, then an effect similar to the "excitement-high and reaction-low" will set in. That is, the child will become increasingly incapable of persisting and concentrating on any one activity.

Of course it can be argued that if a child had "true" freedom of choice he would be sufficiently interested in the original chosen activity that he would not want to move on to something else. However, the author would suggest that in order for a child to persist in some activity he needs some

adult help and guidance. He might not receive this in a situation where the teacher accepts a wide variety of different behaviors in her class, and thus implicitly allows the child to skip from one activity to another almost as he pleases.

The necessity for some adult guidance would seem to be suggested by the data obtained in the study. It is notable that the teachers who placed some demands on the children and thus offered help and guidance to their pupils generally maintained the highest levels of student interest in all tasks. Table 2 and Figure 1 would seem to give an indication of an optimum level of general interest seen in the subjects at a point designated by the O.P.S.I. measure as being approximately around the score of 40 points on the index. The resulting graphs drawn from this data suggest a curvilinear relationship between interest and amount of freedom of choice with an optimum level at the mid-point and tending towards more behavior-restriction on the O.P.S.I. This suggestion of an optimum level of interest is also supported by the data on interest levels in workcards (Figure 2) and that on interest levels in creative activities (Figure 4). In both cases teachers who scored between 40-50 points on the O.P.S.I. recorded the highest levels of interest among their students in these activities.

This study would propose that the most realistic way of viewing the variables of interest and freedom of choice would be in terms of a curvilinear relationship. This approach is promoted by Ogilvie (1974). He suggested that looking at dichotomies such as "formal" or "informal" teaching practices was wrong as it could lead to the erroneous generalization of "the more the better." If, however, measures are obtained at several points along any continuum, a completely different picture of the relationship may emerge.

In his study of creativity and curriculum structure, Ogilvie found that less structured environments did not produce students with the highest scores on the creativity test and the most uncertain classroom organization gave rise to the lowest scores. He suggested, in conclusion, that it is necessary to qualify the statement that informal teaching promotes divergent thinking abilities, as this was really only a half truth which arose because researchers generally examined only a dichotomy on the structure dimension. In his study the formal schools tested were less inimical to creative potential and expression than certain types of progressive schools. However, the "midroad" schools, neither strictly formal nor ostentatiously informal, did best on the creativity test scores.

Recommendations

The conclusions drawn from this study would seem to suggest that the topic of classroom levels of interest and how these relate to teacher techniques of classroom management is an area which would profit from further research. Both children's levels of interest and the interest stimulus capacity that various activities have in different classroom contexts could be more precisley defined, and the interaction between the two variables documented.

In addition, it is highly likely that an optimum level effect between teacher restrictiveness and student's level of interest could be found. Teachers 2, 3, and 4, with O.P.S.I. scores between 40-50 points, generally recorded the highest levels of interest. In theoretical terms this area could be described as one where the teacher maintains a rough balance between the amount of restrictions she imposes and the opportunities she allows for

freedom of choice, with the emphasis being placed slightly more on the restriction or rather on the stringent specification of which behaviors are considered acceptable and which not, in the classroom.

The recommendations to be drawn from this study for teacher practice would seem to support the view that it is unwise to throw the child into a sea of complete freedom and leave him to sink or swim on his own. Rather they would seem to underline the importance of the role of the teacher in terms of guiding her students' behavior and helping them to learn how to learn. It might be fitting to end here on a purely evaluative and subjective note. From the observer's own impressions, the two classes in which the students seemed to be the most meaningfully occupied, and in which one would expect them to gain the most from their experiences, were also the two classes which the observer would have judged to be most truly implementing the philosophy of open education. These two classes were those of Teachers 3 and 4, who fell exactly at the mid-point of demanding certain restrictions on behaviors and at the same time leaving some opportunities for students' freedom of choice.

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APPENDIX A

THE OPEN PROGRAM STRUCTURE INDEX

00074

Instructions

The task you are to complete consists of three parts. These are as follows:

1) Identify in your thinking the classroom you wish to describe. Think about how a typical class day is organized, from the time the children arrive in the morning to when they leave. Use the blank sheet of paper to draft out how this typical or representative day is organized in time.

   For example - Sharing 8:30 - 8:45
   Reading 8:45 - 9:45 etc.

2) After you have drafted out a description of this more or less representative class day, transfer the information to the PROGRAM DESCRIPTION SHEET. You do not have to record a detailed description; the major concern is that YOU know what the times you've indicated refer to. Brief descriptors and "from-to" time periods will be sufficient.

   Be sure, however, that the times are accurate in the sense that they "add up" to the total amount of time in the representative day you have described. You can check this by totaling the time for each segment you describe. Also, if a time segment is used concurrently for more than one purpose (e. g. you might be working with a reading group while the remaining children are doing seat work independently) indicate this with a slash (/), for example - reading/seatwork.

3) After you have transferred your description of a representative class day to the PROGRAM DESCRIPTION SHEET, read the following list of child behaviors (and note that these are the same behaviors which are listed at the top of the RATING SHEET):

   A go to the bathroom
   B get a drink of water
   C rest, be left alone, have privacy
   D move freely around the room
   E practice large muscle coordination (except running)
   F practice fine muscle coordination (eye-hand) (other than with pencil or crayon)
   G run, play with, tease, chase other children
   H talk informally with other children
   I receive responsive undivided individual attention from you (as a teacher) regarding something important enough to him to initiate contact with you

J informal involvement** in dramatic play
K informal involvement with music (singing, dancing, rhythms, etc.)
L informal involvement with art (painting, clay, woodworking, etc.)
M informal involvement with math, science, nature
N informal writing
O informal reading

** note that informal involvement means that (1) space and materials which facilitate participation are provided, (2) there are options present, and (3) children may choose from these options.

NOW, for each time segment you have indicated on the PROGRAM DESCRIPTION SHEET you are to make a judgement regarding each of these 15 behaviors. The question you are to ask yourself is "within a given time segment would I generally accept the behavior, were it to occur, or would I think of it as generally inappropriate during that time?" If, from your point of view, the behavior would be generally acceptible during the specific time segment, then rate it with a plus (+). If, on the other hand, you would view the behavior as generally inappropriate during the time segment, then rate it with a zero (0). Continue through the time segments you have described until you have rated each of the 15 behaviors.

J informal involvement** in dramatic play
K informal involvement with music (singing, dancing, rhythms, etc.)
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APPENDIX B

INTEREST RATING SCALE

00078

Interest Rating Scale

Instructions and Definitions

This rating scale is an observational instrument designed to convert subjective impressions of interest into manageable data. It is dependent on focal subject sampling. The observer concentrates on one student during the whole of the observation session and only considers behaviors which are performed by the focal subject in the final rating.

The most unobtrusive way to observe a child without alerting him to the fact that he is the focus of attention is to take a number of short glances at the subject every few seconds rather than stare at him continuously for any length of time. In addition, it is advisable not to look directly at the face of the student but rather to focus on a point beyond the child so as to give the appearance of looking beyond the pupil. The observer should be seated inconspicuously in the corner of the class in such a way that she may see all the students under observation. If the subject becomes obscured from sight or if the observer cannot hear the content of the child's conversation with a neighbor, then the investigator may leave her seat and walk along the edge of the classroom area, close to the wall or windows, until she is in a position to see or hear adequately.

A stopwatch or a watch with a second hand is used to measure the two-minute observation session. During the last 15 seconds of this time (when a minute and 45 seconds have elapsed) the investigator makes a judgment as to the level of interest observed and assigns a rating to the observation. The rating is based on the child's predominating behavior. If a child performs a number of behaviors which fall into two or more different interest levels, then the lowest appropriate interest level rating is given. For example, if

the subject seems to be deeply absorbed and is working on his own at a task (behavior appropriate to Level 3), and yet interrupts his activity to talk to his neighbor about his work (behavior appropriate to Level 2), then the child's behavior is rated as being at Level 2. Only one interest level rating can be assigned to each subject during any single observation session. If, during the observation, the child finishes the task and starts to wander around or has to wait for further instructions from the teacher, then the observation time sample should be discarded.

The data obtained by the use of the interest rating scale is gathered in a table, which has the names of all the focal subjects written down the side and the activities to be observed written across the top, as portrayed in Table 1. As the observations progress, each square is filled by either a 3, 2, or 1 numeral, designating the observed level of interest for that child on that particular activity.

Table 1

Matrix Used in Gathering Data from Interest Rating Scale

	Activities			
Subject's Name	Workcards	Books	Table Games	Creative Activities
John	3	2	2	2
Mary	1	3	3	2
....	...	...	...	...

00080

The activities observed can be changed and should be selected as to the particular needs of the investigator. It is not necessary that the investigator use the same activity categories as the ones used in the present study in implementing the Interest Rating Scale. However, it is essential that prior to the use of this instrument the observer select a random sample of subjects. The actual number of subjects used is left to the discretion of the investigator. It is suggested that the number in the sample should not be less than a quarter of the whole class if it is to be representative of that particular student population. The same subjects are then kept throughout the observations. Each is observed in turn as his name appears on the list (see Table 1). If the child is not engaged in the appropriate activity to be rated when it is his turn to be observed, then the investigator should move to the next student on the list. The investigator should then continue to glance in turn at all the subjects on the list until he comes across a selected pupil who is engaged in an appropriate activity which the investigator wishes to observe. The instrument is used continuously during the time the class is in progress until the previously specified number of observations is completed.

In using the Interest Rating Scale it was found that the predominant ratings made with this instrument tended to fall in the medium level of interest (Level 2). This rating was given whenever the student engaged in social contact which was related to his work. Children who worked on their own tended to receive a larger number of high interest ratings. Only in the case of total distraction and disinterest was a Level 1 rating given. On the whole, ratings of Level 1 were given with far less frequency than ratings of Level 2 or 3.

00081

Table 2

Definitions of Levels of Interest Used in the Interest Rating Scale

Level 1. Low Interest: An orientation to work which is routinized, going through the motions indifferently with no apparent interest or involvement.

a) The child talks to peers or adults about matters not related to work.
b) He looks around at objects in the class and may pick up and examine objects not related to the task.
c) He may wander around the room or engage in non-permitted or disruptive activity.
d) He may ask the teacher for help or follow her instructions, but in a fairly routinized or indifferent way.

Level 2. Medium Interest: A higher interest in the activity; the child may look up from his work occasionally but returns to it with some purposefulness.

a) If he talks to peers or adults, it is about matters related to the task.
b) He may watch someone doing the same or similar task to get fresh ideas.
c) He may go to look for objects to use in the activity and then go back to the task.
d) He may make moderately intense attempts to get the teacher's attention.

Level 3. High Interest: The child is deeply interested and involved in whatever he is doing. He is completely undistracted by the activities around him.

a) He may get up and fetch other task-related objects to help him perform the activity but he does not talk to others during this time nor does he take any notice of them.
b) This personal involvement with a task is generally a solitary one; however, if speech is involved, it would be in the form of making strong demands for the teacher's help and attention.

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